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INVESTIGATION ABOUT CONSUMER ATTITUDE AND ITS ANTECEDENT TOWARDS ENVIRONMENTAL SUSTAINABLE APPAREL: A CASE STUDY IN INDIAN CONTEXT

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ABSTRACT

Textile industry contributes a prominent role in global economy but is being condemned as one of the most polluting industry having inconsiderate effect on environment and human health. Due to the increase in the environmental concern posed by the textile industry, the demand for sustainable apparel has risen particularly in the west, signalling shifts in knowledge, beliefs and attitudes. Literature revealed a huge research gap in Indian context of consumer's attitudes and its antecedent towards Environmental Sustainable Apparels. The purpose of this research study is to examine the awareness level of consumers' environmental concern, knowledge level of the impact of textile and apparel industry on the environment and also investigates the influence of these on consumers' attitude towards environmental sustainable apparels. Data from 272 respondents is collected in northern India using a survey instrument in the form of a questionnaire through snow ball and convenience sampling. The data is analysed through descriptive statistics and correlation analysis using SPSS v21. The research reveals a huge environmental concern among educated Indian consumers. The bi-variate statistical analysis yielded a significant correlation between environmental concern of Indian consumers and their attitude towards environmental sustainable apparels. Level of the knowledge and belief as acquired by Indian consumers about the impact of textile industry on environment is very less, limiting their consumption of environment friendly clothing. The study will help the manufacturers and retailers to understand the antecedent to consumption of environmental friendly apparels and to work on the strategies to promote sustainable fashion clothing in Indian Market.

KEYWORDS: ***Sustainable, Apparels, Consumers' Attitude, Fashion & Textile***

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INTRODUCTION

The continuous growth of the global economy has caused significant environmental problems for the planet and eco-system [Wang, 2010]. Textile industry has a prominent role in global economy [Texprocil, 2018] but at the same time it has been condemned as one of the most polluting industry having an inconsiderate effect on the environment and human health. Today, the industry is facing criticism due to huge amount of energy consumption, heat emission, water consumption and hazardous nature of various chemicals being used throughout from raw material extraction till disposal phase and disturbing the eco system [Pal, 2017a; Pal 2017b].

Due to the increase in the environmental concern posed by the textile industry, the demand for sustainable apparel has risen particularly in the West, signaling shifts in knowledge, beliefs and attitudes [Hayat, 2016;

Hustvedt & Dickson, 2009]. This shift in the consumer attitude pushed the manufacturers and retailers to move towards the development of environmental sustainable apparel to solve the environmental problem to some extent. Keeping all these facts in mind, the purpose of this research study was to examine the awareness level of consumers' environmental concern, knowledge level of the impact of textile and apparel industry on environment and also investigates the influence of these on consumers' attitudes towards environmental sustainable apparels.

LITERATURE REVIEW

Over the past few years, there has been an increased interest in the sustainable and ethical practices in the fashion industry [Claudia, 2016]. The past decades have seen an emergence of 'sustainable fashion' terminologies, such as eco-, green-, slow-, and ethical fashion, which are used interchangeably [Lai, 2017]. Sustainable fashion first emerged in the 1960 when consumer became aware of the impact of clothing manufacturing on the environment and demanded the industry change its practices [Claudia, 2016; Jung & Jin, 2014]. Sustainable fashion is predominantly associated with environmental sustainability which includes renewable and eco-friendly raw materials, the reduction of carbon footprints, durability and longevity [Claudia 2016; Joergens, 2006]. Apparels classified as 'sustainable fashion' can best be described as those goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emission of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations [Lai, 2017; IISD, 2015]

Consumers are becoming increasingly aware of the sustainable aspects of the apparel they buy [Shen, 2012]. Growing consumer awareness regarding social and environmental impacts of fashion products has led to create a new marketplace for sustainable and ethical products [Dissanayake, 2017]. To improve the actions & effectiveness of sustainability product and marketing companies, Sheth et al [2011] suggest a consumer centered approach to the sustainability [Sheth, 2011]. However many consumers still have a low levels of knowledge concerning the environmental effects of apparel production [Hill and Lee, 2012; Bhaduri and Ha-Brookshire, 2011; Gam, 2011; Phau and Ong, 2007). Lack of knowledge of the negative environmental impact of the apparel industry may be a barrier to sustainable purchasing [Hill and Lee, 2012; Gam, 2011; Hiller Connell, 2010]. So the awareness to spread such concern for the environmental impact of apparel production and the knowledge to support the sustainable approaches is important as the Earth cannot indefinitely bears the burden of unsustainable means due to depletion of natural resources [Hill and Lee, 2012].

RESEARCH OBJECTIVES

- To examine the awareness level of environmental concern, knowledge level of the impact of the textile industry on the environment as held by Indian consumers.
- To investigate the consumers' attitude towards environmental sustainable apparels.
- To examine the influence of environmental concern and environmental textile knowledge of consumers on their attitude towards environmental sustainable apparels.

METHODOLOGY

The research is quantitative in nature utilizing survey instrument in the form of a questionnaire to measure environmental concern in general, environmental textile knowledge and consumers' attitude towards environmental sustainable apparels. Data from 272 respondents, who had acquired education at least graduate level, was collected in

northern India through snow ball and convenience sampling. The empirical analysis carried out involves: questionnaire design, pilot testing, reliability and data analysis through descriptive statistics and correlation analysis using SPSS. The respondents were asked to rate the degree of their agreement of the questionnaire statement based on a five point Likert-scale, in which "1" represented "strongly agree" and "5" represented "strongly disagree."

RESULTS

Respondent Profile

Analysis of 272 respondents demographics showed that a majority of the participants (48.9 %) were under the age of 35, and 77.6 % were under the age of 44. The mean age of the respondents was 35.4 approx. Regarding education, 59.2 % respondents was having a graduate degree and 40.8 % participants were post-graduate. Gender distribution indicates 60.7 % were males and 39.3 % females. Occupation and combined annual household income were widely distributed indicating respondents from different financial background from various professions.

Reliability Analysis

Reliability Analysis of New Environmental Paradigm (NEP) Scale, Environmental Textile Knowledge and Consumers' attitude towards environmental friendly clothing was determined for the complete data through Cronbach's alpha measurement. Cronbach's alpha scores for NEP, Environmental Textile Knowledge and Attitude scale were 0.809, 0.713 & 0.812 respectively. Since all cronbach score were above 0.70 (Cronbach, 1951) which indicate an acceptable reliable data.

Environmental Concern

New Ecological Paradigm (NEP) scale is used which quantitatively measure the awareness level of environmental concern. Descriptive statistics: means and the frequency of NEP items is shown in table 1. Summed mean of the NEP scale (2.062) is close to 2.0 which indicate that the respondents are concerned about the current state of the environment. The item No. 3 on NEP scale which states "When humans interfere with nature it often produces disastrous consequences" demonstrate the highest level of agreement out of all the items with a mean score of 1.71. 45 % respondents are strongly agreed and another 45 % agreed that human interference to the nature will result into disaster consequences. Similarly for item no. 5 and 15, the mean scores are 1.81 and 1.79 respectively. In both the category, 85 % respondents either agree or strongly agree that humans are seriously abusing the environment and if things continue on their present course, we will soon experience a major environmental disaster.

Item no. 12 is reverse coded and the mean score of item no. 9 and 12 is 1.87 and 1.83 respectively which indicate a high level of environmental concern among Indian. Results of item no. 9 and 12 demonstrates that the majority of respondents (85%) believe that despite our special abilities, humans are still subject to the laws of nature and disagree with the term "Humans were meant to rule over the rest of nature". Similarly for item no. 13, 70 % respondents 'agree' or 'strongly agree' that the balance of nature is very delicate and easily upset while 15% respondents have shown disagreement with this term.

Table 1: Descriptive Statistics and Frequencies for NEP Scale

S.No	Item	Mean	Frequency %				
			1	2	3	4	5
1	We are approaching the limit of the number of people the Earth can support.	1.98	40.4	37.9	8.1	10.7	2.9
2	Humans have the right to modify the natural environment to suit their needs.*	2.30	26.5	44.5	9.2	12.5	7.4
3	When humans interfere with nature it often produces disastrous consequences.	1.71	44.9	44.9	6.3	2.6	1.5
4	The inborn nature of humans shall prevent earth from becoming unfit for our survival.	2.63	19.1	34.9	18.4	19.1	8.5
5	Humans are seriously abusing the environment.	1.81	44.5	40.4	7.4	5.5	2.2
6	The Earth has plenty of natural resources if we just learn how to develop them.*	2.51	23.9	32.7	20.6	14.0	8.8
7	Plants and animals have as much right as humans to exist.	2.05	33.6	45.8	7.4	8.9	4.4
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations.*	2.01	36.4	41.5	10.7	7.0	4.4
9	Despite our special abilities, humans are still subject to the laws of nature.	1.87	37.9	47.4	7.4	4.8	2.6
10	The much hyped "Ecological Crisis" that man is experiencing is not as severe as it has shown to be.*	1.99	38.2	40.1	9.6	8.8	3.3
11	The Earth is like a spaceship with very limited room and resources.	2.19	29.3	41.9	15.2	8.1	5.6
12	Humans were meant to rule over the rest of nature.*	1.83	41.9	43.0	8.1	4.8	2.2
13	The balance of nature is very delicate and easily upset.	2.18	31.0	39.1	14.4	11.8	3.7
14	Humans will eventually learn enough about how nature works to be able to control it.*	2.10	28.8	46.5	13.3	8.5	3.0
15	If things continue on their present course, we will soon experience a major environmental disaster.	1.79	41.5	44.5	9.2	3.3	1.5

1= Strongly agree, 2= Agree, 3=Neither agree nor disagree, 4=Disagree, 5= Strongly disagree
(* indicate that item is reverse coded)

The item no. 10 states "The much hyped 'Ecological Crisis' that man is experiencing is not as severe as it has shown to be". This item has a mean of 1.99 which is equivalent to 2 for "agree". This item is reverse coded, which indicates that a strong negative answer is actually equal to higher level of environmental concern. 78 % respondents indicated that they 'disagree' or 'strongly disagree' with the statement. Another item no. 14, which states "Humans will eventually learn enough about how nature works to be able to control it" has a mean of 2.10. This item also reverses coded so implying the response equivalent to 4 i.e. disagreement with the statement. 75 % respondents are 'disagree' or 'strongly disagree' with the statement while 13.3 % are neutral in this regard.

Item no. 8 which states "The balance of nature is strong enough to cope with the impacts of modern industrial nations" is reverse coded, i.e. a score of 2.01 indicate that respondent are having a higher level of environmental concern by disagreeing with the statement. In other words, industrial development is disturbing the balance of nature suggesting adopting sustainable practices to protect the environment. Around 78 % respondents have shown positive concern while 11 % respondents are neutral and a meager 11 % have not supported the statement positively.

Respondents moderately agreed with item no. 4, which states "The inborn nature of humans shall prevent earth from becoming unfit for our survival". The score of 2.63 indicates that the present cause of concern has happened because of the selfish motives and 19.1 % respondents disagree while 8.5 % strongly disagree that human ingenuity will insure that

we do not make the Earth unlivable. 18.4 % respondents are neutral indicating that they are not sure whether people will be doing something constructive to protect the environment. On the other hand, 54 % respondents have been of the opinion that human beings will genuinely be working for the betterment of the environmental conditions and shall prevent the earth from becoming unfit for our survival.

Item no. 6 is reverse coded and states "The Earth has plenty of natural resources if we just learn how to develop them". The item has a mean score of 2.51 which indicates that some respondents (22.8 %) are of the view that the earth has sufficient natural resources and we need to learn to develop them. 56.6 % respondents have shown disagreement while 20.6 % respondents are neutral in this regard.

Item no. 1, which has a mean score of 1.98, indicates that we are approaching the limit of the number of people the Earth can support. 78 % participants indicated that they 'agree' or 'strongly agree' with the statement. Another item no. 2 with a mean score of 2.30 states that "Humans have the right to modify the natural environment to suit their needs" is reverse coded. 71 % respondents have shown disagreement with this statement showing their positive concern for the environment. Around 20 % respondents are opined in favour of the statement reflecting the human domination over nature to suit their needs.

Overall the New Ecological Paradigm scale has demonstrated huge environmental concern of the respondents. Respondents are concerned that humans are seriously abusing the environment and if things continue on their present course, we will soon experience a major environmental disaster. Respondents also agreed that human are subject to the laws of nature and displayed a high level of concern by disagreeing that humans have the right to modify nature to suit their needs. A large percentage of respondents disagreed that 'human ingenuity will insure that we do not make the Earth unlivable'. Overall, analysis has entrusted the responsibility of unbalancing the environment on human being and the way we are ruining the environment will result into disaster consequences. Industrial development is disturbing the balance of nature suggesting toadopt sustainable measures to protect the environment.

Awareness to Impact of Textile Industry on Environment

Analysis indicates that summed mean of the knowledge of the impact of the textile industry is 2.25, which is far off from '1' which in fact is right option or the surety of the responses of participants. This reflects that people are not much aware of the environmental impact of the textile and apparel industry. Descriptive statistics data is mentioned in Table 2.

Cotton: is it Safe for the Environment

Item no. 2 which states "Chemical pollutants are not produced during processing of natural fibres such as cotton" is reverse coded because the statement is false. In fact globally, more agrochemical insecticides are applied to cotton than any other major crop making it the most chemical polluted crop. Only 11 % of the respondents have reported the right answer while the majority are either not sure or unaware of the facts and carry the belief that cotton production is safe for the environment which is not true in reality looking at the vast amount of chemicals being used.

Table 2: Descriptive Statistics of Environmental Textile Knowledge Scale

S. No	Item	Mean	Frequency %				
			1	2	3	4	5
1	Chemical pollutants are produced during manufacturing of synthetic fibres such as polyester.	1.86	35.2	49.6	10.4	3.7	1.1
2	Chemical pollutants are not produced during processing of natural fibres such as cotton.*	2.80	19.5	28.7	15.1	25.7	11.0
3	National or regionally mandated standards for clean air and water have not yet been imposed on textile companies.*	2.73	18.3	29.1	22.4	22.0	8.2
4	Air pollution can occur during some common dye processes of textiles.	2.23	23.3	47.8	16.3	7.4	5.2
5	Dyeing and finishing processes uses a lot of water.	1.69	48.9	37.8	9.6	3.3	0.4
6	Fibres such as cotton, wool etc. cannot be recycled.*	2.60	20.0	27.8	30.7	15.2	6.3
7	Detergent can be a source of water pollution.	1.92	38.2	39.0	16.9	4.4	1.5
8	Natural fibres are usually bio-degradable.	1.73	47.4	37.0	13.0	0.7	1.9
9	The use of large quantities of natural fibres will significantly decrease energy consumption.*	2.80	18.5	27.8	16.3	29.6	7.8

1= Strongly agree, 2= Agree, 3=Neither agree nor disagree, 4=Disagree, 5= Strongly disagree
(* indicate that item is reverse coded)

Awareness to Regulating Standards Imposed on Textile Industries

Only 18.3 % respondents feel that mandated standards to curb air and water pollution are imposed on textile industries. This indicates that regional and central level regulating bodies need to impose these standards strictly and awareness must be promoted among masses to curb the harmful impact on the environment.

Recyclability of Fibres

Results of item no. 6, which states that "Fibres such as cotton, wool etc. cannot be recycled", demonstrate that there is little awareness regarding the recyclability of the fibres. This item is also reverse coded as the statement is false. Only 21 % respondents are aware that fibres are recyclable and reusable.

Cotton Consumes Less Energy – A Misconception

Another misconception which people have is about the item no. 9 which is reverse coded and results indicates people think that the use of a large quantity of natural fibres will significantly decrease energy consumption. In reality carbon footprints are very high even for natural fibres like cotton. More than 50 % respondents are not aware of it and have answered wrongly.

However other items within the scale are responded satisfactorily by the majority of the participants. These are "Chemical pollutants are produced during manufacturing of synthetic fibres such as polyester", "Dyeing and finishing processes uses a lot of water" and "Natural fibres are usually bio-degradable". These items have a mean scoreof 1.86, 1.69 and 1.73 respectively, and more than 85 % respondents are 'agree' or 'strongly agree' with these statements. So results indicates that consumers know that natural fibres are usually bio-degradable and safe to environment while chemical pollutants are produced during manufacturing of synthetic fibres. They also understand that dyeing and finishing process use a lot of water. They also concur to a greater extent that detergent can be a source of water pollution which is indicated by the mean score of 1.92.

Overall, it can be inferred that consumers are unsure of the environmental impacts of textile products and processes. The manufacturing of apparels uses a large amount of energy and globally, more agrochemical insecticides are

applied to cotton than any other major crop. They are not safe to the environment and the majority of consumers hold the incorrect knowledge or the belief that cotton clothes are better for the environment. They are misinformed or of the belief that natural fibres like cotton are good for the environment, which leads them to answer incorrectly. Overall interpretation of the findings of this scale demonstrated that on the average Indian consumer has not much knowledge of the environmental issues of the apparel and textile industry.

Consumer Attitude Towards Environmental Sustainable Apparel

The summed mean for the Attitudes toward environmental sustainable apparels is 2.238 as can be seen from table 3. This is close to the response category of 2 on the 5-point Likert scale, which is close to 'agree' and showing a positive attitude towards environmental sustainable apparels.

Item no. 1 which states "I would not purchase an environmentally sustainable apparel product" is reverse coded. The score of 1.82 demonstrate significant positive attitudes of the consumers showing the disagreement of 76.4 % respondents to this statement.

Table 3: Descriptive Statistics and Frequencies for Attitudes Scale

S.No	Item	Mean	Frequency %				
			1	2	3	4	5
1	I would not purchase an environmental sustainable apparel product.*	1.82	43.2	33.2	22.1	1.5	-
2	Environmentally sustainable apparel is a mediocre product.*	2.39	26.5	30.1	23.2	18.4	1.8
3	Environmentally sustainable apparel is a high quality product.	1.98	36.4	31.6	29.8	1.8	0.4
4	Environmentally sustainable apparel is a poor value product.*	1.95	38.4	30.6	29.2	1.1	0.7
5	Environmentally sustainable apparel is a well-made product.	2.40	15.9	32.8	47.2	3.7	0.4
6	Environmentally sustainable apparel is boring.*	2.23	21.3	38.1	36.9	3.7	-
7	Environmentally sustainable apparel is a worthwhile product.	1.86	43.0	29.6	25.9	1.5	-
8	Environmentally sustainable apparel is easy to find.	3.27	2.6	19.5	37.1	30.1	10.7

1= Strongly agree, 2= Agree, 3=Neither agree nor disagree, 4=Disagree, 5= Strongly disagree
(* indicate that item is reverse coded)

Item no. 5 which states "Environmentally sustainable apparel is a well- made product" has a mean of 2.40 demonstrate that 48.7 % respondents are not sure whether the environmental sustainable apparels are well made or not. Though even after being positive in attitude as a whole, they are not sure of whether these kinds of apparels will be having the attribute which can satisfy the consumers' expectations. This point also may be valuable for retailers or manufacturer to promote the attributes of environmentally friendly apparels which the consumers are looking for.

Item no. 6 which states "Environmentally sustainable apparel is boring" is reverse coded and has a mean of 2.23. The majority of respondents (36.9%) agree neither nor disagree about the statement that whether these kinds of apparels are boring or not. This reflects that they have not been actively involved in purchasing environmentally friendly apparels otherwise they may have stated either agreement or disagreement with the statement. Again Indian consumers need promotion, availability and the awareness about these kinds of products.

Another important observation is that mean score for item no. 8 "Environmentally sustainable apparels is easy to find" is 3.27 indicating that though the respondents are positive in attitude yet 41 % respondents are of the opinion that environmental sustainable apparels are not easily available in the market and 37 % respondents are not sure of their availability in the market close to them demonstrate that presently they are not involved in purchasing these items. In other words, we may conclude that either promotion, availability or the awareness of these kinds of apparels in the market is missing, which needs to be worked out by the retailers or manufacturers. There seems to be a scope for these kinds of products.

So overall the results show that attitude of the respondents is positive towards environmental sustainable apparels. But due to non-availability and exposure to these kinds of product, respondents are not sure whether these products would be able to meet their expectation of having the attributes which they look for and they will not own a boring product just for the sake of showing concern for the environment. So these conclusions entrust a responsibility on the part of manufacturers, retailers by promoting and adding attributes in apparels.

Correlation between Variables

Before conducting the correlation analysis, preliminary analysis was performed to ensure normality and linearity of the data. Analysis conveyed that Environmental Concern, Environmental Textile Knowledge and Attitude had symmetric distribution. So Pearson correlation is used to find out the relationship between environmental concern as measured by the New Ecological Paradigm scale, Knowledge level as measured by the environmental textile knowledge scale and consumers' attitude as measured by Attitude Scale.

Table 4: Pearson Correlation Coefficient between Variables

Pearson Correlation between	Env. Concern	Env. Textile Knowledge	Attitude
Env. Concern	1	0.431**	0.561**
Env. Textile Knowledge	0.431**	1	.354**
Attitude	0.561**	.354**	1

** Correlation is significant at the 0.01 level (2-tailed).

As evident from table 4, there is a positive and strong correlation between environmental concern and attitude (r = .561) while environmental textile knowledge moderately correlated with consumer attitude (r = 0.354) at the 0.01 level.

CONCLUSIONS

The research reveals a huge environmental concern among the educated Indian consumers however the level of the knowledge and belief as acquired by Indian consumers about the impact of textile industry on environment is very less, limiting their consumption of environment friendly clothing. . Findings indicates that a significant percentage of consumers are unaware of the recyclability of fibres used in clothing, huge amount of chemicals & energy being used in the production of cotton fibres as well as regulating standards being imposed in mitigating air and water pollution. The bi-variate statistical analysis yielded a significant correlation between environmental concern of Indian consumers and their attitude towards environmental sustainable apparels. The correlation between environmental textile knowledge and consumers' attitude towards environmental sustainable apparels is also significant but to a lesser extent. The availability of environmental sustainable apparels in Indian consumer market is inadequate, indicating huge prospects for garment manufacturers and retailers. The study will help the manufacturers and retailers to understand the antecedent to consumption of environmental friendly apparels and to work on the strategies to promote sustainable fashion clothing in

Indian Market.

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